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Infected Egg Shells as a Means of Spread of Salmonellosis in Chicks and Ducklings

A Preliminary Note

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It has been recognised for many years that the incubator is the most important agent in the spread of pullorum disease because of the close contact of large numbers of chicks within a relatively small space, and the ideal conditions for the spread of bacterial infection that occur during the process of "drying off" after hatching. During this period there is a large amount of down circulating in the incubator, especially in the large, modern forced draught machines. Contrary to previous belief, it is now recognised that inhalation is the chief method of infection. The primary source is the hatching of eggs laid by "carriers," *i.e.*, fowls which have survived an attack of the disease during the chick stage or which have become affected subsequently. *S. pullorum* is present in the ovaries of such birds and is found in a proportion of the eggs laid. The number varies but is usually in the region of 10 to 15 per cent. Infection may also occur later in life by ingestion of contaminated food, and it is well known that the feeding of raw or improperly sterilised infertile eggs or "dead in shell" material from the incubator may produce disastrous results in young chicks and in adult stock. Similar results may follow the use of swill or other waste food contaminated by infected egg products.

Infection with *S. gallinarum*, the causative organism of fowl typhoid, occasionally causes losses in young chicks and growing turkeys, but egg transmission, although sometimes suspected, has never been proved. In many hens that have recovered from the disease and in chronic cases, distortion of the ovary to a varying degree is almost invariably noted, and gives rise to lesions indistinguishable from *S. pullorum* infection. *S. gallinarum* is readily isolated from the ovules but we have never succeeded in demonstrating it in eggs laid by such fowls, although many have been examined bacteriologically over a long period. This is apparently the common experience of workers in this country. The usual method of infection in this disease is ingestion of food and water contaminated by the organism, and it appears from observations in field outbreaks and from experimental studies in the laboratory that a considerable "build up" of infection is necessary to precipitate an acute outbreak.

Infections with *S. aertrycke* have been recorded in canaries, parrots, chicks, hens, ducks and geese and with *S. enteritidis* in chicks, ducks and pigeons. Faecal contamination of the food or water by contact with affected birds or rats and mice, which often harbour Salmonella species, is the principal method of spread of the disease. Outbreaks are commonest in unhygienic premises or in premises where large numbers of birds of a susceptible age are housed. Macroscopic changes in the ovary have so often been noted and the organism has so often been isolated from affected ovules that direct transmission of the disease by means of the egg, as in the case of pullorum infection, has been suspected, yet most workers have consistently failed to demonstrate the organism in eggs laid by "carriers."

REVIEW OF LITERATURE

Scott (1930) described several examples of food poisoning in human beings, some fatal, due to infection with *S. aertrycke*, the source of which was apparently the ingestion of duck eggs or of food products containing them. In one case over 300 persons were involved. He did not actually isolate the organism from eggs, but he considered that the circumstantial evidence of poisoning from that source was so strong as to be conclusive. He showed experimentally that penetration of the shell could occur if part of the exposed shell was kept moist, and that there was considerable difference in the rate of penetration. He pointed out that the conditions under which ducks were kept and their casual method of egg laying were conducive to contamination of the egg shell. When artificially infected eggs were kept for about a fortnight, they represented an enormous dose of organisms.

Warrack and Dalling (1932 and 1933) recorded losses in young ducklings due to *S. aertrycke* and *S. enteritidis gaertner*, and found infected eggs on many occasions. Hole (1932) described three outbreaks in ducklings, two due to *S. aertrycke* and one to *S. enteritiditis*. He investigated the possibility of egg transmission and, although he was unable to isolate the organisms from the eggs he examined, he concluded that there was a possibility that this occurred. Garside and Gordon (1940) described an extensive outbreak of salmonellosis of ducklings due to *S. aertrycke* and *S. enteritiditis gaertner*. Attempts to eradicate carriers in the breeding flock by blood testing were unsuccessful. Cultural examination of eggs laid by "carriers" gave uniformly negative results. The same authors (1943) published an extensive account of further laboratory work in amplification of their previous findings and confirmed the failure of routine blood-testing to eliminate carriers. They failed to find evidence of egg transmission of the disease by cultural examination of more than 2,400 eggs or in ducklings hatched from eggs from reactors. The importance of hygienic measures of control is stressed. A very complete list of recorded cases is given in both papers.

Within recent years there has been an apparent increase in the incidence of outbreaks of Salmonellosis of chicks, many of them caused by *S. thompson*.

The possibility of food poisoning in man arising from the consumption of infected eggs renders the diagnosis, control and prevention of such outbreaks in chicks and ducks of much importance, more particularly perhaps in the case of hatcheries and persons who distribute large numbers of chicks throughout the country, thereby increasing the risk of widespread dissemination of the disease.

Wilson (1944) described an outbreak of disease in chicks, due to a mixed infection with *S. aertrycke* and *S. thompson*, in which a possible source of *S. aertrycke* was dried milk powder contaminated with mouse faeces from which this organism was isolated. *S. thompson* was demonstrated in the intestines of mice caught in the brooder house, and it was considered that this represented a possible primary source of infection. In view of more recent work to be described in this paper, it now appears that although this surmise may have been correct, it is more probable that the mice acquired the disease through contact with infected chicks and disseminated rather than introduced the disease.

PRESENT INVESTIGATION

The above farm was kept under observation and the first hatch of the present season was successful; 939 chicks were reared to 21 days with a percentage mortality of 6·3. The second hatch one week later also produced chicks which reared well (1,051 chicks with a percentage mortality of 8·3). In one particular batch, however, a mortality of 14·2 per cent. occurred (Farm B). Chicks from the third hatch reared badly, 138 dying out of 857 hatched during the first three weeks (16 per cent.). The mortality in different groups varied considerably from what might be considered to be normal losses; up to 36 per cent. in the worst affected group (Farm A), and 14 per cent. of a batch from Farm B died. *S. thompson* and *S. aertrycke* were isolated from affected chicks, a very large number of which were examined bacteriologically. *S. thompson* was much more frequently noted than *S. aertrycke*.

Bacteriological examinations of several samples of food were negative and the uneven distribution of the disease in the brooder house, together with the very early onset, suggested incubator infection. Deaths occurred from the second day after hatching and increased in number up to the fourth and fifth days. There was a second peak at about the ninth and tenth days; the second peak was usually higher than the first, suggesting secondary spread in the brooder. This was confirmed by the introduction of healthy chicks from an outside source, a number of which succumbed to the disease.

It is of interest to note that the highest mortality occurred in batches of sex-linked chicks which had been bred from pullets, and in one case (Farm B) the breeding pen had been sexed as "day old" chicks at the premises during the previous season when the outbreak already reported had occurred. Infection was probably acquired at that time and although no undue mortality was observed during rearing, it is likely that some of their number subsequently became carriers.

We have shown that this does occur in the duck. In one instance from a pen of six survivors of an outbreak of *S. thompson* (which affected the ducklings when a few days old and which are now about eight months old and have recently begun to lay) *S. thompson* has been isolated from the outside of an egg shell and from the intestines by means of a cloacal swab.

To check the possibility of incubator infection, at the next hatch 25 chicks (Farm A) were taken from the incubator immediately after drying and forwarded to the laboratory to be reared under controlled conditions. One chick was dead on arrival and *S. pullorum* was isolated from the yolk. Deaths occurred from the fourth to the 13th days after hatching with a peak between the sixth and tenth days. *S. thompson* was isolated from 16 chicks and *S. aertrycke* from seven; one chick was negative. Samples of egg shells were obtained from the incubator trays from the same hatch and *S. thompson* was isolated from four batches (including Farms A and B) and *S. aertrycke* from one batch. *S. thompson* was also isolated from fluff and dust sweepings collected from the floor of the incubator room after a hatch.

These findings were a clear indication that incubator infection was taking place, and in view of the experience of previous workers who failed to isolate Salmonella from eggs, it was considered that a possible source of infection might be the setting of eggs, the shells of which were contaminated with *S. thompson* or *S. aertrycke* infected during passage through the cloaca by contact with faeces containing these organisms. The possibility of direct transmission through the yolk could, however, not be entirely neglected. Sixty hatching eggs were, therefore, obtained from Farm A and 60 from Farm B for bacteriological examination.

Method of Bacteriological Examination of Eggs

Swabs were made by covering small "balls" of cotton wool with square pieces of gauze, the ends being twisted and tied with thread to form a "neck" for easy manipulation with forceps during the operation of swabbing.

After being sterilised, the swab was moistened with sterile broth, passed over the surface of the shell and dropped into a flask of tetrathionate broth. The egg shell was next washed in 5 per cent. dettol solution, dried, plunged into methylated spirits and then flamed. Dipping and flaming were repeated a second time. The tip of the shell was removed by breaking with sterile forceps, the albumen decanted and discarded and the yolk poured into a large tube of brilliant green peptone water. Shells were examined in groups of six but yolks were incubated individually.

Platings were subsequently made on McConkey medium, suspicious colonies picked off and submitted to carbohydrate fermentation tests and to serological tests, using sera from the Standards Laboratory, Oxford. *S. thompson* was isolated from two lots of six shells from each farm. The yolks were negative in every case.

Diagnosis of Carriers

Agglutination tests were carried out in both flocks for *S. pullorum*, *S. aertrycke* (H. specific), *S. thompson* (H. specific) and *S. cholera suis* (H. non-specific). The results are given in Table I and reveal probable carriers of organisms similar to those isolated from chicks during the outbreak.

Table I.—Results of Agglutination Tests of two Flocks in which Salmonellosis was suspected

Antigen	Flock A			Flock B		
	Number Tested	Positive	Doubtful	Number Tested	Positive	Doubtful
S. pullorum ..	397	4	0	283	0	0
S. aertrycke .. (H. Specific)	397	7	3	283	1	0
S. thompson .. (H. Specific)	397	0	0	283	3	0
S. cholera-suis .. (H. non-specific)	397	8	2	283	0	0

In view of our previous experience with survivors from an outbreak of *S. thompson*, it was considered that the result of the agglutination test was unlikely to give an accurate indication of the degree of infection present in the respective flocks, as it had been noted that reactions tended to be transient and that sometimes organisms could be isolated from the faeces of non-reacting fowls. It was, therefore, decided to take cloacal swabs from flocks A and B. Table II shows the result of this examination.

Table II.—Result of Bacteriological Examination of Cloacal Swabs

Flock A			Flock B		
Number Tested	Number Positive	Type of Salmonella	Number Tested	Number Positive	Type of Salmonella
111	3	*S. thompson*	283	8	*S. thompson*

The figures revealed must be considered to be minimal as it is unlikely that the organism is constantly present in the faeces of infected birds and, moreover, in a number of cases where defaecation had recently occurred it was difficult to obtain satisfactory samples.

The result of these experiments confirms that faecal contamination of the shell during the process of egg laying occurs and it is a possible means of introduction of the disease to the incubator should the affected egg be used for hatching. It is possible that penetration of the shell may take place, especially if contaminated eggs are stored for some time before use or during the process of incubation. This possibility, which is of importance from the standpoint of food poisoning and of control of the spread of infection in the incubator, is being investigated.

Control Measures

Fumigation of the incubator with formaldehyde gas is suggested as the most practical method of controlling the disease in the case of mammoth forced-draught incubators. The first treatment should take place immediately after the eggs are set. As it is customary for a fresh batch of eggs to be added each week to replace those removed to the hatching compartment, the fumigation of the incubating chamber should be repeated each week. The hatching compartment should be fumigated during hatching and the process should be repeated before the next lot of eggs is introduced.

The two common methods of formaldehyde gas disinfection are by the "cheese cloth" method and the use of potassium permanganate as the liberating agent. In the former, 20 c.c. of formalin are required for each 100 cubic feet of incubator space. A piece of cheese cloth about a yard square is soaked and then hung up as near the fan as practicable and allowed to remain there for at least three hours. Chicks during hatching may have two treatments, the first when one-tenth to one-fifth are out of the shells and again about 12 hours later. Fuller details of these methods may be found in Circular 403 of the Illinois Experimental Station and in papers by Graham and Michael (1932).

In the second method, 35 c.c. of formalin and 17·5 grammes of potassium permanganate are required for each 100 cubic feet of incubator space. The materials are placed in a wide enamel dish and the doors kept closed for three hours. Chicks may be fumigated three times by this method; just after hatching commences and 12 and 24 hours later.

Eggs are not injured by repeated fumigation even when the materials are used at double strength, but chicks are more susceptible and the quantities of formalin used must be carefully computed and not exceeded. They should never be treated when more than 48 hours old.

The relative humidity of the air in the incubator should always be noted before disinfection as a proper concentration assists hatching, reduces the circulation of dust and down and aids the germicidal action of the formaldehyde. About 68 per cent. is the suggested amount. (Wet bulb 90° F. Dry bulb 100° F.)

Practical experience has shown that no deleterious effects may be expected to follow fumigation, if properly carried out; bacteriological examinations of shells thus treated suggest that this measure presents a satisfactory method of control. Experiments are being undertaken to investigate alternative methods for the disinfection of the shells of hatching eggs.

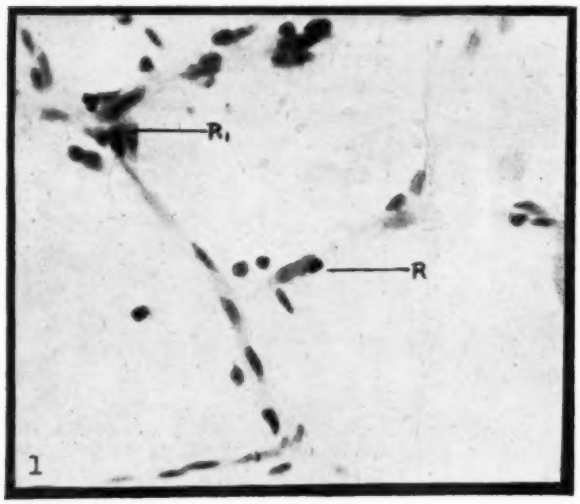
In outbreaks of Salmonellosis involving a hatchery, it may be possible by a perusal of the mortality charts, which are usually available, to suspect one or more supplying flocks, and it may be considered worth while to examine the pens implicated by means of cloacal swabs so that definite evidence of infection may be obtained and the supply of eggs discontinued. Most hatcheries now retain a proportion of chicks from each hatch, in some cases amounting to a very large number, for rearing on the premises to three weeks and to eight weeks; in such cases losses may be very heavy should the disease be introduced owing to the constant passage of infected chicks through the brooder houses during the season, resulting in a massive accumulation of infection. Duplicate brooder houses appear to be the best method of control in such cases, so that when a series of cages become empty after disposal of the chicks there is adequate time for cleansing and disinfection before re-use. The provision of a duplicate set of cages is of value, but the increased benefits from completely separate brooding rooms are obvious. The usual hygienic measures should be carried out, with particular emphasis on the eradication of rats and mice and the proper protection of food supplies from these animals. Under certain conditions, recourse to the agglutination test as an auxiliary control measure may be desirable.

Summary

1. A serious outbreak of disease in young chicks giving rise to a mortality reaching up to 36 per cent. due to infection with *S. thompson* and *S. aertrycke* is described.

2. The isolation of *S. thompson* and *S. aertrycke* from the shells of hens' eggs and *S. thompson* from the shell of a duck's egg is recorded.

3. Bacteriological examination of cloacal swabs has shown that faecal contamination is a probable source of this infection.



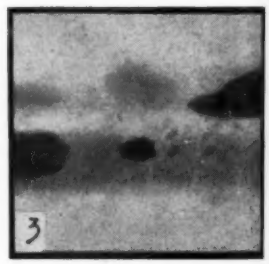


FIG. 1.—Blood vessels as seen with 1/6 objective. Parasite at R.
FIG. 2.—Parasites situated at R_1 in Fig. 1. 1/12 oil immersion objective.
FIG. 3.—*R. ruminantium* in unbroken capillary. 1/6 objective.
FIG. 4.—*R. ruminantium* in wall of blood vessel. 1/12 oil immersion objective.

4. The setting of contaminated eggs is shown to be a means of spreading the disease within the incubator, and that wiping of dirty eggs or the handling of infected eggs may spread infection to others. Secondary infection takes place in the brooder.

5. It seems possible that mice may become infected with *S. thompson* during contact with diseased chicks and may play a part in the further dissemination of infection through contamination of food supplies.

6. "Custom-sexing" on affected premises may be the means of setting up fresh outbreaks.

7. The agglutination test is unlikely to be a practical or effective method of eradication.

8. Disinfection of eggs within the incubator by formaldehyde gas is suggested as a control measure where the disease is suspected. Fumigation of the chicks during hatching should also be practised. The spraying of the floor and lower walls of the incubator room during removal of chicks for packing or sexing may be a useful additional measure. Where hatching and rearing are carried out on a large scale the provision of duplicate brooder rooms is suggested.

9. The presence of Salmonella on egg shells may be a method of infection in cases of food poisoning in man. It is possible that penetration of the shell may occur, resulting in infection of the contents and increasing the risk of food poisoning. Failure to isolate *S. thompson* or *S. aertrycke* from the yolks of the eggs examined is recorded, but it seems probable that such infections do occur.

Addendum

Since preparing this paper, the bacteriological examination of eggs from hens and ducks naturally infected with *Salmonella thompson* has been continued and the organism has been isolated in several cases from the yolk, albumen and the inside of the shell. This would appear to be the first time that a *Salmonella* other than *S. pullorum* has been recorded in hens' eggs in this country and the first occasion on which *S. thompson* has been isolated from ducks' eggs.

In view of these findings, the control measures suggested in the paper cannot be absolute, but probably still represent the most practicable method of control of the disease until such time as an efficient method of diagnosis of "carriers" becomes available.

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INFECTIOUS EQUINE ENCEPHALOMYELITIS IN U.S.A.

The final report[1] of the Chief of the Bureau of Animal Industry, United States Research Administration, on the prevalence of equine encephalomyelitis in this country during 1944, states that 19,590 cases were reported from 33 states. The number of cases reported for the past ten years have been: in 1935, 23,512; in 1936, 3,929; in 1937, 173,889; in 1938, 184,662; in 1939, 8,008; in 1940, 16,941; in 1941, 36,872; in 1942, 4,939 and in 1943, 4,768. Last year the mortality varied from 100 per cent. in New Hampshire and New Jersey to 18 per cent. in Kansas and 16 per cent. in Nevada. For the whole country deaths averaged 24 per cent. of the cases.

Missouri, with 4,160 cases and 857 deaths, had the highest number in both categories.

It is estimated that about 800,000 horses and mules were vaccinated for the prevention of the disease. Reports on 242,650 animals, that were vaccinated in counties where the disease occurred, indicate that 56 cases and 23 deaths occurred in vaccinated animals. The incidence was 14 times as high in non-vaccinated animals in the same localities.

Perhaps it were well to point out that these failures of vaccination are not necessarily a fault of the vaccine. In all cases so far investigated, in which vaccinated animals contracted the disease, the vaccine was injected subcutaneously instead of intradermally. Last year, as in previous years, a considerable number of animals were vaccinated by their owners or other lay vaccinators and it is a reasonable inference that most of these failures of equine encephalomyelitis vaccination were due to improper vaccination.—*Vet. Med.*

[1] For a more detailed report see *Vet. Med.*, **39**: 12, p. 435, 1944.

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Weekly Wisdom

I am tempted to say that genius is the art of not taking pains. It is the gift of idling between masterpieces. It is the power of lying fallow. It is the rotation of crops. Work exhausts the creative soil.—**Anon.**

A Simple and Rapid Method for Demonstrating Rickettsia ruminantium (Cowdry, 1925) in Heartwater Brains

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The unequivocal diagnosis of heartwater requires the demonstration of the causal organism, *R. ruminantium*. Cowdry (1925) stated that the micro-organism "was most easily detected in the renal glomeruli and in the small capillaries of the cerebral cortex but probably occurred throughout the body." That the causal organism is distributed throughout the body of a case of heartwater is well known and Steck (1928) even found Rickettsia in a capillary vessel within 10μ of the epidermis. The parasite is usually demonstrable in cut sections either from frozen or embedded material. This procedure, which cannot be carried out by an officer in the field, entails a delay of some days before a conclusive diagnosis can be reached. Ordinary blood smears do not reveal the parasites as was noted by Cowdry (1925), who also reported that "Fresh smears of various organs taken at autopsy were likewise examined without results."

Jones (1936) advocated Leishman stained smears made from scrapings of the intima of the aorta. This technique is useful and rapid, but in the writer's hands it has proved difficult to get an evenly thin layer of endothelial cells on a slide. Purchase (1942) found that the "exoerythrocytic" forms of the parasite of turkey malaria could be demonstrated by Giemsa stained brain "impression smears."

The method here described is based on the fact that if a small particle of fresh tissue relatively free from connective tissue can be spread on a glass slide as a thin layer, then all the tissue elements which were originally in the material will still be present in the form of a film; admittedly, the arrangement and position of the various cells will have been disturbed, but the small vessels and capillaries will remain as relatively long pieces with intact endothelial linings. As the parasite of heartwater is invariably situated in the endothelial cells, any technique which facilitates the examination of the capillary vessels will also expedite the discovery of suitably stained Rickettsia.

The central nervous system is relatively ric' in small blood vessels and easy to spread. *R. ruminantium* can easily be recognised in smears made by this technique from different parts of the brain, but the best smears are those prepared from the grey matter of the cerebrum. Smears made from cerebellar tissue are not so easy to search because of the numerous nerve cell nuclei and tendrils present. The spinal cord yields very satisfactory preparations which are nearly as good as those from the cerebral grey matter. "Impression smears" are disappointing as the slide picks up numerous brain cells, but very few blood vessels, the latter remaining on the cut surface of the brain.

Preparation of Squash Smears.—With the point of a clean, sharp knife or scalpel a fragment from the cerebral grey matter, the size of a split pea, is cut out and placed at the end of a cleaned glass slide. A piece the size of a tomato seed is cut off and the remainder of the material is discarded. With the end of a second or "spreader" slide, the small fragment is squashed until the material wells across the greater part of the width of the slides; the upper slide is raised slightly at an angle of two to five degrees and drawn along the lower one, the two slides being kept pressed together moderately hard. The brain material should now cover one-third to three-quarters of the surface of the lower slide.

Staining.—The smears are air dried and fixed in methyl alcohol for two minutes. The best results are obtained by staining with Giemsa one in ten for 30 minutes and washing thoroughly for at least five minutes in running tap water. Leishman, methylene blue and Gram stains can be used, but are not as satisfactory as Giemsa.

Begg (1944) and co-workers found that a modification of Macchiavello's (1939) method stained the typhus Rickettsia red and cellular tissue blue. This stain has been applied to both "squash" smears and sections of brains but Rickettsia of heartwater retained the methylene blue and not the basic fuchsin.

Examination of Stained Preparations.—Using a one-sixth inch objective, a collection of capillaries is located and examined critically with the one-twelfth oil immersion objective. The Rickettsia appear as dark blue bodies whilst the nuclei of the endothelial cells are purplish. All forms from two or three single elements to very large compact collections of parasites can be found. The parasites as seen in sections are surrounded by a halo or small unstained area; in "squash" smears, on the other hand, this halo is reduced considerably and is absent around the majority of the parasites, suggesting that the formation of the halo may be an artefact which develops in the processing of the tissue for sectioning. Such a

(*Concluded at foot of column 1, page 414*).

CLINICAL COMMUNICATION

Ventral Hernia in a Cow

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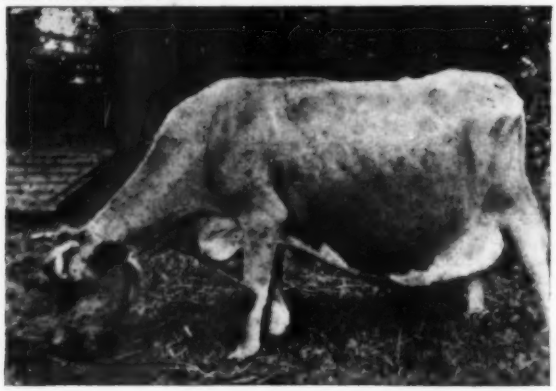
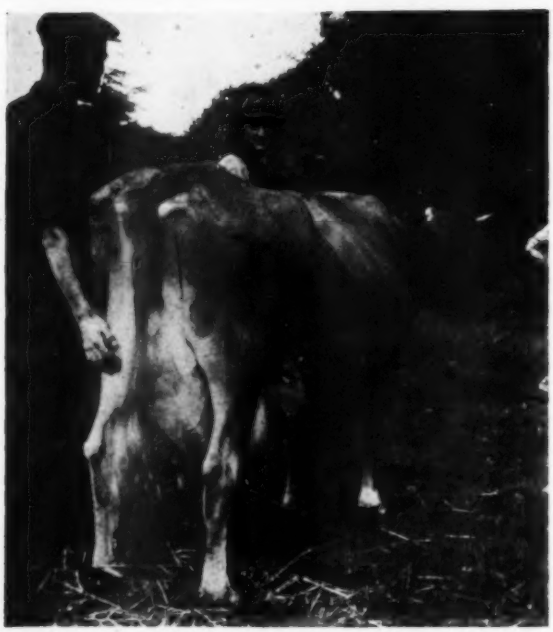
Subject.—Guernsey cow, due to calve on July 15th.

History.—Fifteen years old, she had had eleven pregnancies. The animal was first seen on June 8th and was in poor condition but not emaciated. She was eating normally, moving fairly easily, and was able to lie down and rise. She did not appear distressed. T. 100·5°. P. 48. R. 20. Appearance as in photographs. Girth measurement 8 ft. 4 in.





On rectal examination the body of the uterus could be felt as a tight band under the fingers, and gave the impression that it was being dragged down to the left side. The horns could not be palpated.

Diagnosis.—Animal pregnant in left horn. Ventral hernia due to weight of uterus and contents on abdominal muscles flaccid through old age and numerous pregnancies.

Prognosis.—Poor. It was thought that the animal would eventually get down and be unable to rise.

On June 12th it was decided to shoot her.

Post-mortem Findings.—The abdominal muscles and fascia were ruptured to the left of the linea alba. The tear was about two feet long and one foot wide. The left uterine horn, containing the foetus, was partly herniated and was thus lying directly on the skin of the abdomen. The eight months foetus was fully developed and normal. The foetal fluids appeared normal, as did also the uterine mucosa. The right horn was fully distended with a straw-coloured fluid; the mucosa was covered with lesions the size of a millet seed. Smears from these lesions stained by the Ziehl-Neelsen method, showed numerous acid-fast bacilli. The estimated weight of the uterus and contents was 3 cwt.; the estimated fluid content of the uterus was 60 gallons.

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Allergic Dermatitis

The following note on the above, contributed by S. F. Stapleton, D.V.M., to the *Jen-Sal Journal* (**28**. Jan.-Feb., 1945: 4-5) is reproduced from the June issue of the *Journal of the American Veterinary Medical Association*. We regret that a second illustration, of special interest as depicting allergic dermatitis following a bovine obstetrical contact, cannot satisfactorily be reproduced.

Allergic dermatitis is a hazard of veterinary practice. Although, once developed, it cannot be completely cured, the sensitivity can be controlled through having a working knowledge of its inciting causes. After making the round of skin disease specialists, the author found that knowledge of its nature was lacking among most of them. The complex allergens to which veterinarians are exposed in their daily work were not considered. One such specialist, however, outlined a commonsense approach to the condition that helped to keep the trouble controlled. Among the sensitising agents are injected foreign proteins (vaccines, bacterins, antitoxins), animal tissues and fluids, among which is horse saliva (*see*, figure), chemical ablutions which damage the protective coating of the skin by repeated contact, sensitising fungi and bacteria on mouldy casting harness, certain kinds of rubber gloves, and contact with certain foods (eggs, pork, fish, fresh bread, fats, carbonated beverages, etc.). The occupational allergies of veterinarians are expressed by rash, intense itching, burning, vesication, and sores which soon become complicated with secondary infections. As to treatment, the author found calcium lactate and sodium bicarbonate, internally, helpful in warding off and modifying the severity of an attack, and advises care in preserving the protective cutaneous epithelium by washing with mineral oil or cold cream in lieu of ordinary soap. The specific allergy caused by Brucella organisms is pointed out. Citing Huddleson, this type may be helped with a high titre Brucella antiserum. Determine the cause and abide by a sound programme of diet and use mild protective applications on the hands.

* * * * *

Allergy from Horse Saliva (?)

Forty years ago when many veterinarians practised dentistry in horses extensively, an eruptive vesico-pustular dermatitis of their hands and arms was of common occurrence. At that time, two Chicago veterinarians so affected were subjected to critical examination by the Columbia Diagnostic Laboratory, where the trouble

halo is well illustrated in plate XXX of Daubney's (1930) paper.

Summary

A rapid and simple method is described for demonstrating *R. ruminantium* in "squash" smears made from the brains of ruminants dead of heartwater.

Acknowledgment.—My thanks are due to Dr. V. D. van Someren for the photographs.

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ABSTRACTS

[In Vitro Studies of the Basis for Sulphanilamide Therapy in Bovine Mastitis. Kakavas, J. C. (1945.) *Amer. J. vet. Res.* **6**. 9.]

Kakavas has found that sulphanilamide in a concentration of 20 mg. per cent. at 37·5° C. has no effect against group B streptococci, although the same concentration is lethal at a temperature of 40·5° C. For sulphanilamide to be effective against group B streptococci at 37·5° C. it must be at a concentration of over 100 mg. per cent. This level must be achieved during the early stage of bacterial growth. P. aminobenzoic acid has its usual inhibitory effect on the bacteriostatic properties of sulphanilamide when tested in the presence of group B streptococci. In the author's experiments one part by weight of P. aminobenzoic acid inhibited 25 parts by weight of sulphanilamide.

These three factors, temperature, concentration of the drug and the presence of inhibitory substances in the infected area will all exert their effects on the success or otherwise of sulphanilamide therapy in the bovine udder.

D. L. H.

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[Development and Survival under Outdoor Conditions of Eggs and Larvae of the Common Ruminant Stomach Worm, *Haemonchus contortus*. Dinaburg, A. G. (1944.) *J. Agric. Res.* **69**. 421-433.]

Since pasture rotation has long been one of the measures recommended for the control of nematode parasites of sheep and other ruminants, it follows that this method of control must be based upon a knowledge of the length of time that pasture, previously occupied by parasitised animals, should be rested before susceptible animals can be grazed on it without danger of acquiring worms. To obtain this knowledge, Dinaburg has made a quantitative study of the rates of development and survival of the various free-living stages of *H. contortus*, under the influence of natural weather conditions at Beltsville, Md., from August, 1939, to October, 1940. He notes that when *H. contortus* eggs were exposed outdoors for three or more days to mean maximum temperatures below 65° F., few preinfective larvae (those recovered after three or six days' exposure) and no infective larvae (those recovered after 13 or more days) were found during the experiments, regardless of the amount of rainfall. When the mean maximum temperatures ranged between 66° and 84° F. during the first three days, the amount of rainfall in the week preceding and the three days following exposure of the eggs considerably affected the degree of their development. After 13 to 20 days outdoors, with no rainfall, infective larvae recovered at no time exceeded an average of 0·01 per cent.; with 0·12 to 0·72 inch and 0·88 to 2·09 inches of rainfall, the highest averages recovered were 0·5 and 21 per cent. respectively. Higher percentages of preinfective larvae were recovered. When the mean maximum temperatures and the rainfall ranged between 86° and 93° F. and 0·26 to 1·57 inches respectively, the highest recovery of infective larvae was 8 per cent. after 13 days. Exposure to full sunlight produced lower yields of larvae than exposure to full shade or partial shade. Recoveries from exposure to full and partial shade were about the same in the middle temperature range whereas in the upper temperature range recoveries from full shade were consistently higher than from partial shade. Eggs did not survive exposure to mean maximum temperatures below 70° F. for more than six to 13 days, as shown by cultures, or for more than 13 to 20 days, as shown by salt flotation. Above 70° F., salt flotations showed that eggs do not survive more than six to 13 days outdoors. Dinaburg concludes that in designating large periods of the year as unfavourable for the survival and development of the eggs of *H. contortus*, temperature is a more reliable weather factor than rainfall.

J. N. O.

In the British zone in Germany as much food as possible will be diverted to direct human consumption, and fodder crops as well as grass will be drastically reduced. Dairy cattle will be culled severely in an effort to ensure that the best use is made of the available fodder. Experience in England during the war showed that more milk can be produced on the same amount of fodder by feeding selected cows well than by keeping a larger number of cows on restricted rations. About 10 per cent. of Germany's pre-war dairy herds will be slaughtered.—*The Times.*

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was diagnosed, tentatively, as an unknown infection, whereupon Health Commissioner W. A. Evans, struck with the characteristic exacerbations and remissions of the two cases studied, pronounced the trouble "an idiosyncrasy"—the word allergy was not coined until 1906.

Questions and Answers

"Questions and Answers" will be published on alternate weeks.

The submission of questions for inclusion in this column will be welcomed: they can relate to any aspect of veterinary work. For purposes of record, each question is numbered, and those submitting questions are required to furnish (not for publication) name and address.

Answers to readers' queries represent exclusively the personal opinions of the writers, and criticism of the replies will be appreciated.

All communications should be addressed to the Editor.

Treatment of Follicular Mange

Q. CV.—*Would you please outline the most successful treatment for follicular mange?*

A.—There are many strongly advocated methods for the treatment of follicular mange, usually advancing the claims of certain proprietary preparations. As these are commonly well publicised by advertisement, the writer does not propose to discuss them, but recommends the daily inunction of the affected parts and surrounding area with a 1:80 stainless iodine ointment with a weekly bath with a soapy derris shampoo (when obtainable). To prepare the ointment, take one part, by weight, of iodum resub. and 80 parts paraffin molle flav. Heat the latter in a water bath until completely liquid, then add the former, stir well and allow to cool, stirring repeatedly until the mixture thickens. The shampoo, under present circumstances, may be made by mixing horticultural derris dust with soft soap.

It must be remembered that, in addition to the causal parasite, *demodex folliculorum*, there is secondary bacterial infection, usually staphylococcal, and injections of staphylococcus toxoid form a useful adjunct. In particularly obstinate cases it is advisable to obtain a specific bacteriological diagnosis of the secondary invaders and eliminate these by the use of specific vaccine, toxoid or chemotherapeutic agent.

Treatment must be thorough and continued over a period of from four to six weeks.

Old-standing cases are not suitable subjects for treatment, and in all cases, after apparent recovery, there is always risk of recurrence if the general condition of the patient is lowered by any other cause.

Operative Procedure for Irreducible Prolapsed Rectum in Puppies and Dogs

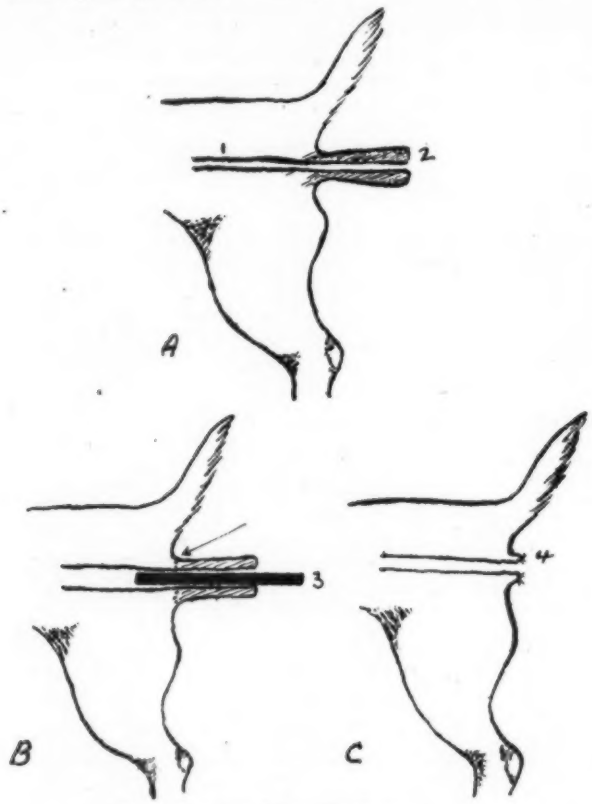
Q. CVI.—*What is the best operative procedure for an irreducible prolapsed rectum in puppies and dogs; in particular the operation for amputation of the prolapsed part? Could you give a simple diagram of how and where the stitches should be placed?*

A.—A detailed reply to this question would occupy a great deal of space, but within the limits at our disposal the following advice is offered. It is presumed that the questioner has tried prolonged bathing (full half-hour) with warm saline or antiseptic to relax the tissues, and that he has attempted reduction by digital manipulation under general or full local anaesthesia (this entails the kneading of the extremity of the prolapse with the tips of the fingers and thumb in an endeavour to turn the edges back into the lumen, bit by bit, until the whole has disappeared). Difficulty is encountered sometimes because adhesions have taken place. These should be broken down by blunt dissection with the handle of a scalpel.

If, for various reasons, it has been quite impossible to return the prolapse by these methods, the practitioner may perform laparotomy and gently withdraw the rectum from the inside. To retain it there, in cases of repeated recurrence, he may perform proctopexy (*i.e.*, suturing the mesentery to the abdominal wall with catgut); or he may amputate.

In the latter case the area of operation must be freed of all hair and rendered perfectly clean, the patient put under general anaesthesia, tail tied to the dog's collar, and the part to be excised laid out on sterile gauze. Before commencing, the surgeon must have satisfied himself that he is dealing actually with a rectal prolapse and not with an intussusception and prolapse of the intestine. A glass rod, metal probe or cylinder (about the diameter of a pencil) is inserted into the lumen of the bowel and made to pass the anal ring. This is to facilitate the insertion of several sutures which are passed inwards to the rod and then out again, their long ends being held by artery forceps. They are applied as near as possible to the junction of the skin with mucous membrane, at the anal ring, and their object is to avoid losing the cut edge of the bowel after the prolapsed portion has been amputated. An incision is now made behind the sutures, but in the first instance only half way round. This enables a hold to be retained of the prolapse whilst a second and permanent series of catgut sutures are being inserted. The glass rod is now removed and the second half of the bowel incised. Suturing is completed and the original stitches taken out. The sutures must not be drawn tightly as the subsequent swelling of the mucous membrane would cause them to cut through. The parts are painted with proctocaine and the small stump returned inside the anus.

Proctocaine, being a suspension in oil, is slowly absorbed and exerts a prolonged action.



Amputation of Prolapsed Rectum.

A 1—Intestine.
A 2—Prolapsed rectum.
B 3—Glass rod or other cylinder passed into lumen of the bowel. Arrow points to position of preliminary sutures close to anal ring.
C 4—Site of amputation and permanent sutures.

After-treatment is important; proctocaine applications and sedation of the animal are needed to abolish pain and straining. The food should be soft and milky, and no solid (such as a suppository or pessary) may be introduced per rectum, as it might induce straining.

The rectum may be gently syringed with warm normal saline, and sulphasuccinyl given per os would greatly help to reduce bowel infection. Bed the dog on clean linen cloths which are easily washable and renewed, and on no account use hay, straw, sawdust or other dirty and dusty material which would no doubt contaminate the wound.

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Reduction of Fehling's Solution by Dog's Urine

Q. CVII.—*Under what conditions, apart from true diabetes mellitus, may this occur? In the absence of insulin, what treatment is recommended, apart from attention to diet?*

A.—It must be strongly emphasised that the importance of reduction of Fehling's solution by canine urine depends on the way this reduction takes place—it should be instantaneous and unmistakable.

In true canine diabetes mellitus the urine contains ketones as well as sugar; if the former are absent, it is important to carry out blood sugar estimation to prove that glycosuria is due to hyperglycaemia. Positive reduction of Fehling's solution can also occur as a result of (*a*) temporary "alimentary glycosuria," following large intake of carbohydrates, particularly sugar. (See Boddie, *Vet. Rec.* No. 8, Vol. XV, 1935); (*b*) salicyluric acid, following the administration of salicylates.

Treatment will depend on the cause, and consists of safeguarding general health; apart from the diet, it can only be symptomatic. It should be accompanied and governed by complete and frequent analysis of urine.

QUESTIONS IN PARLIAMENT

Prior to the rising of the House of Commons for the Recess, the following questions and answers were recorded:—

Veterinary Service

Mr. Harold Davies asked the Minister of Agriculture if he is aware of the backwardness of Britain's veterinary services, with its ill-effect upon the efficiency of British agriculture; and what steps he is prepared to take towards the establishment of a national veterinary service available to all who need it.

Mr. T. Williams: Whilst I am unable to accept all the implications of the Question, I agree that the supply of veterinary surgeons is at present inadequate for the needs of agriculture. The recommendations of the Loveday Committee on Veterinary Education in Great Britain regarding the provision of improved and expanded facilities for veterinary education, are still under consideration with the organisations chiefly concerned. The inclusion of all veterinary surgeons in a national veterinary service offers no solution of the immediate problem with which we are faced.

Mr. Alpass: May I ask whether, in view of the statement of the National Veterinary Medical Association that the losses due to disease in dairy cattle amount to £20,000,000 per annum and the loss of milk yield to about 200,000,000 gallons per annum, and the great need for increased milk production, the right hon. Gentleman will treat this very important matter as a question of national urgency?

Mr. Williams: Certainly, Sir.

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Milk

Sir P. Hannon asked the Minister of Food if he will now make a statement on the policy of the Government on the results of the issue of White Paper, Cmd. 6454, for improvement in the quality of the nation's milk supply; in how many areas has Defence Regulation 55G been operative; and if active measures are being introduced to prevent the sale of milk which may cause death or disease.

Dr. Summerskill: Progress towards the enforcement of the White Paper standards of milk at time of sale to the consumer has been disappointing, and no areas have yet been specified under Regulation 55G. The difficulties in the way of providing necessary additional plant and equipment, and in many cases buildings, have been greater than was thought when the White Paper was issued, and until this deficiency can be made good the imposition of heat treatment of milk upon all dairymen will not be practicable. Considerable progress, however, has been made in this direction, the introduction of a special heat treatment allowance as a supplement to the ordinary retail margin provided in consumer prices, being, no doubt, a contributory factor. The output of new plant is now improving, and I hope that it will soon be possible greatly to accelerate the arrangements for the full implementation of the White Paper policy for heat treatment. Certain changes of procedure may be necessary, but on that subject I cannot say more at present than that it is receiving my right hon. Friend's active consideration in consultation with the Departments concerned.

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Water Act, 1945

Sir R. Glyn asked the Minister of Health if, having regard to the urgency of an improved and extended water system, as being fundamental to town and country planning, it is the intention of the Government to attempt national organisation under Sections 1 to 4 of the Water Act, 1945, in the immediate future, and, meanwhile, to suspend water planning by county councils and district councils whose boundaries rarely correspond with those appropriate to the water areas envisaged by the Act, and whose plans, if approved, would prevent economical water organisation for the country as a whole.

Mr. A. Bevan: The Government intend to make full use of the powers of the Water Act, 1945, which comes into force next October, and will take all necessary steps to that end. Water supply schemes will be judged by the Ministry on their merits—machinery is provided by the Act for overcoming any difficulties caused by the administrative boundaries of local authorities.

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Government Policy for Agriculture

Mr. De la Bere asked the Minister of Agriculture (1) whether, without prejudice to the formulation of a long-term agricultural policy, he will formulate a short-term emergency policy for agriculture designed to provide labour and stimulate the production of essential foods in the immediate future from the farms of this country; (2) whether he will give an assurance that the Government's long-term policy for agriculture will be made known to the House before the end of this year.

Mr. T. Williams: I have nothing to add at present to the statement on the Government's agricultural policy in the Gracious Speech from the Throne.

Mr. De la Bere: Is the right hon. Gentleman aware, in view of that answer, that in regard to agriculture the present Government does not appear to be a prototype of progress? The right hon. Gentleman knows it is true, does not like it, and cannot think of a suitable answer.

Mr. Williams: Might I commend to my hon. Friend the programme of the Labour Party during the last election?

REVIEW

[**Speed in Animals.** A. Brazier Howell, Univ. of Chicago Press.]

This volume of some 250 pages has a somewhat esoteric value for the veterinary practitioner. To anyone engaging in research into the fundamentals underlying movement, such as must be undertaken if further advances are to be made in the study of equine lameness, we can recommend this volume as a careful and thoughtful conspectus of locomotion throughout the vertebrate kingdoms. The print and get up are excellent, and the line drawings heading each chapter call for a word of admiration to their anonymous creator. We understand the book can be obtained in this country through the Cambridge University Press, 196, Euston Road, N.W.1, price 24s.

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Sept. 11th.—Meeting of the Southern Counties Division, N.V.M.A., at Southampton.
Sept. 12th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1, 2.30 p.m.
Sept. 12th.—Meeting of the N.V.M.A. Drafting Committee on Calf Husbandry and Calf Diseases, 11 a.m.; Survey Committee, 2.30 p.m. Both at 36, Gordon Square, W.C.1.
Sept. 13th.—Meeting of the Survey Committee, N.V.M.A., 10 a.m.
Sept. 13th.—Summer Meeting of the North of Scotland Division, N.V.M.A., at Inverness (Caledonian Hotel).
Sept. 14th.—Meeting of the Survey Committee, N.V.M.A., 10 a.m.
Sept. 15th.—Applications due for Miss Cust Research Scholarship.
Sept. 18th.—Annual Meeting of the Society of Veterinary Practitioners at Oxford (Randolph Hotel), 2.15 p.m.
Sept. 19th.—R.C.V.S. Committee Meetings.
Sept. 19th.—Meeteing of the Western Counties Division, N.V.M.A., at Taunton (Deller's Café), 2 p.m.
Sept. 20th.—R.C.V.S. Committee Meetings.
Sept. 21st.—**R.C.V.S. Council Meetings.**
Sept. 21st.—Meeting of the North Wales Division, N.V.M.A., at Bettws-y-Coed (Memorial Hall), 2 p.m.
Sept. 26th.—Meeting of the Association of Veterinary Inspectors, Conway Hall, W.C.1, 3 p.m.
Sept. 25th-28th.—**N.V.M.A. Annual Meetings, 1945.**

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ANNUAL MEETINGS, N.V.M.A.

With last week's issue of *The Veterinary Record* members received a full programme of the various meetings, demonstrations and social functions to be held from September 25th to 28th inclusive, together with an "application for tickets" form, the issue of which is repeated this week. Those members who have not yet applied for tickets should do so without delay, and, as previously intimated, those who have already applied for tickets for the Luncheon and Reception should use the form for any notification of their desire to attend the Film Exhibition, Demonstrations and Ladies' Excursion.

The sheet inserted in our issue of September 1st inadvertently gave the impression that ladies other than those who are members of the Association were invited to the Demonstrations and Lunch arranged at the Ministry of Agriculture's Laboratory for September 28th. Shortage of accommodation precludes this and it is partly for this reason that a Ladies' Excursion has been arranged.

As already suggested, Members of Council should travel by the 9.27 a.m. train from Waterloo to West Weybridge. Members attending the Demonstrations only, or ladies taking part in the Excursion (to start at 11.15 a.m. from the Laboratory) will be early enough if they catch the 9.57 a.m. or 10.27 a.m. trains, but will be welcome if they chose to travel by the earlier train.

It is hoped that members will co-operate in ensuring the smooth working of these arrangements by returning the form **not later than September 14th next.**

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Roll of Honour

MacLean, Brian, Capt. R.A.V.C., 50, London Road, St. Leonards-on-Sea. Graduated London, December 19, 1941. Died on active service, July 26th, 1945, at Catania.

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PERSONAL

Illness of Dr. Bullock

Major A. B. Mattinson, President of the Royal College of Veterinary Surgeons, writes:—"The Members of the Profession will be very sorry to hear of the prolonged ill-health of our Registrar and Secretary. There is little doubt that the chief cause of his illness is overwork, and the worry which is consequent upon a fear of physical inability to give of one's accustomed best, which must greatly harass so conscientious a worker as Dr. Bullock.

"Although many Members of the Profession, and all members of the Council, have a considerable knowledge of the duties devolving upon the Secretary and of the abilities Dr. Bullock brings to their discharge, it is true to say that only those who have held Presidential Office can be fully aware of their magnitude, and the additional burdens and shortage of staff incident to the war, have placed too great a burden upon him.

"I feel fully assured that I am expressing the unanimous voice of the profession in wishing Dr. Bullock a speedy recovery, and a renewal of health and strength which will enable him to continue to give us the benefit of his invaluable services, for many years to come."

[Dr. Bullock was taken ill with intestinal trouble during the first week of his holiday, upon which he entered on July 21st. In associating ourselves most sincerely with the President's expression of sympathy and hope for his early and full restoration to health, we are happy to report a good measure of improvement and that Dr. Bullock hopes to be able shortly to resume his duties.—Editor.]

Birth—Rowson.—On August 19th, 1945, at West Hill Nursing Home, to Audrey Kathleen, wife of L. E. (Tim) Rowson, M.R.C.V.S., Cambridge—a sister for Peter and John.

Marriage.—Widden—Crowhurst.—On August 11th, 1945, at Bodmin Parish Church, George Frederick Widden, M.R.C.V.S., 25, Craven Terrace, W.C.2, son of Mrs. Widden and the late Mr. C. Widden of London, to Lydia Crowhurst, only daughter of Mr. C. Crowhurst, M.R.C.V.S., and Mrs. Crowhurst, "Penventon," Bodmin, Cornwall.

R.A.V.C. Officer's Horse Jumping Success.—Scotland's Victory Horse Jumping Championship was decided at an attractive meeting, organised by Messrs. R. L. Ballantyne and M. A. Blyth, well known in the agricultural community in Central Scotland, and held at Bridgehaugh Park, Stirling, on August 15th. The title, carrying with it a silver cup and a money prize of £30, was won by Major R. C. Crowhurst, R.A.V.C., Redford Cavalry Barracks, Edinburgh, with his Canadian mount, Jack, which had never previously been a prize-winner in an open event. The meeting was in aid of Stirling Royal Infirmary.

The Minister of Agriculture, Mr. Tom Williams, has appointed Lt. Fred Peart, M.P. for Workington, as his Parliamentary Private Secretary.

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POULTRY ADVISORY COMMITTEE FOR SCOTLAND

The Department of Agriculture for Scotland announce that the Secretary of State for Scotland has appointed a Poultry Advisory Committee to advise him on matters relating to the poultry industry in Scotland, particularly the improvement schemes and any further developments designed to improve the health and quality of poultry in Scotland.

The committee is appointed for a period of three years, and its members are: Mr. J. B. V. Cummings, Penicuik; Miss C. M. Dunn, Aberdeen; Miss M. L. Shirra Gibb, Lauder; Mr. A. W. Greenwood, D.SC., PH.D., Edinburgh; Miss A. M. Johnston, Comrie; Mr. W. K. Leggat, Turriff; Mr. H. Morison, Earlston; Mr. A. M'Kend, Whauphill; Mr. J. G. Penny, Crieff; Mr. T. E. Whittle, Auchincruive; Mr. J. E. Wilson, B.SC., M.R.C.V.S., Ministry of Agriculture and Fisheries Poultry Laboratory, Eskgrove, Lasswade; and Mr. J. G. Wright, Lockerbie.

The committee will meet under the chairmanship of a senior officer of the Department. Mr. J. M. Caie, principal assistant secretary in the Department, will act as chairman until further notice. The secretary of the committee is Miss J. Kennedy, Department of Agriculture for Scotland, St. Andrew's House, Edinburgh, 1.

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ADDRESSES OF DISEASE-INFECTED PREMISES

FOOT-AND-MOUTH DISEASE:

Hunts.—The Forge, Hemingford Abbots, Huntingdon (Sept. 1st); Hemingford Grey; and Home Farm, Hemingford Abbots, Huntingdon (Sept. 2nd); Chapman's Close, Hemingford Abbots, Huntingdon (Sept. 3rd).

SWINE FEVER:

Berks.—Red Cow Allotments, Amersham Road, Caversham, Reading (August 29th).

Cambs.—Coldhams Lane Allotments, Cambridge (August 28th).

Cheshire.—Eaves Knoll Farm, New Mills, Stockport (Sept. 3rd).

Clackmannanshire.—Barnpark, Lower Mill Street, Tillicoultry (Sept. 2nd).

Durham.—Sunderland Borough Hospital Farm, Cherryknowle, Ryhope, Sunderland, Co. Durham (August 31st).

Glos.—The Tythings, Newent (August 30th).

Herts.—Fruit Farm, Letchmore Heath, Watford (August 29th).

Hunts.—Elsie Farm, Ramsey St. Mary's, Huntingdon (August 31st); 9, Star Lane, Ramsey, Huntingdon (Sept. 1st).

Lincs.—King Street, Sutton Bridge, Holbeach (Sept. 1st).

Warwicks.—Littlewood Green, Studley (August 28th).

Yorks.—Huddlestone Grange Farm, Sherburn in Elmet, South Milford (Sept. 1st).

SHEEP SCAB:

Denbighshire—Pridd Bwyll, Llansannan, Denbigh (August 17th).

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H.M. STATIONERY OFFICE PUBLICATIONS

HOUSE OF COMMONS BILLS: Session 1945-46:		
7. Agriculture (Artificial Insemination)	0 2	0 3
COMMAND PAPERS (Session 1945-46):		
(6661.) Department of Health for Scotland. Summary Report for the year ended June 30th, 1945	0 6	0 7
(6663.) Colonial Research, 1944-45. I.—Colonial Research Committee, second Annual Report; II.—Colonial Products Research Council, second Annual Report; III.—Colonial Social Science Research Council, first Annual Report	0 6	0 7
DRAFT STATUTORY RULES AND ORDERS, 1945:		
Milk and Dairies, England. Milk (Special Designations) Regulations. August 17th. (Published August 21st, 1945.)	0 1	0 2
WAR OFFICE:		
Grant of Honorary Rank to Officers of the Regular Army (including Officers holding Emergency, Temporary, Short-service and Temporary Short-service Commissions), Retired Officers Re-employed, Regular Army Reserve of Officers (including the Militia and the Supplementary Reserve of Officers), Territorial Army and Territorial Army Reserve of Officers (excluding Officers appointed for service with the Army Cadet Force). (Special Army Order No. 128.)		

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MEAT INSPECTION IN MANCHESTER

The Market Committee of the Manchester Corporation has (states *The Meat Trades Journal*) considered a report of the Public Health Committee in regard to meat inspection and came to the conclusion that the present system was satisfactory. The Committee stated that it has always recognised the importance of the inspection of food and for this purpose maintained a staff of inspectors possessing very high qualifications. In this connection they would point out that while veterinary surgeons were recognised for this work for the first time in the Food and Drugs Act, 1938, the Markets Committee has employed veterinary officers on this work for very many years past. In addition, its other inspectors hold special qualifications in regard to meat or fish.

With regard to the Public Health Committee suggestion that it is in the interests of the City that all Food Inspectors should be under the control of one authority, the Markets Committee would point out that the inspectors who determine whether food is fit for human consumption or not have for approximately one hundred years been under the control of one authority, *i.e.*, the Markets Committee, and such inspection, it is claimed, has given satisfaction both to the community at large and to the various branches of the food trade in that period. The suggestion that the work should be carried out by the Public Health Committee has been raised before in the City Council, but the Council declined to alter the position.

The Markets Committee claims this work is more closely linked with the administration of the duties of the department than with those of the Public Health Department, and that any transfer of such functions would lead to divided control and necessitate, in the Markets Department, the employment of more staff to carry out administrative duties which are now covered by this technical staff.

As shown in the report of the Town Clerk and the Medical Officer of Health, 95 per cent. of the total weight of food condemned in the City is obtained from the Wholesale Markets and, therefore, as far as practicable, the possibility of the distribution of unsound food is checked at the source before any distribution to retailers has taken place. This, it is claimed, in addition to safeguarding the health of the community, results in considerable economy in staff.

Much of the ancillary work (*i.e.*, Diseases of Animals, Merchandise Marks Act, etc.) is closely connected with the veterinary and other specialised knowledge of the Inspectors of the Markets Department and has little or no direct relation to the Public Health Department.

At the present time very little unsound food is found in shops, owing to the restricted stocks carried by shopkeepers and the fact that there is no inducement to a trader to sell unsound food which he can replace through the condemnation certificate. In addition, the confidence of the food trade in the present arrangements is demonstrated by the fact that an Inspector's decision is rarely challenged. There has been no complaint or suggestion of inefficiency from the traders or the public.

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NEED FOR BETTER SLAUGHTERING

In its report of the proceedings at a recent meeting of the Executive Council of the National Federation of Meat Traders, *The Meat Trades Journal* states that considerable criticism was made by various members of the Executive of the manner in which cattle were being slaughtered. Much care and attention was being given to the preservation of the hide, said Councillor Rymill, but it seemed that the carcase of the animal was the last thing that mattered. Mr. Morris said cattle were being badly slaughtered, they were not being properly bled or dressed. The main cause no doubt was that there were insufficient slaughtermen and the remedy was that more should be released from the Forces. They wanted better slaughtering and delivery so that the public could have their meat in a presentable condition. Alderman Wyles did not blame the slaughtermen; he thought butchers who were skilled slaughtermen could relieve the situation by offering their services. Although slaughtermen were in Class B for demobilisation, Servicemen were not attracted to apply for their release because they would be liable to be called at some future date, said Mr. T. C. Eden, who felt that the man-power position in the slaughtering industry would not improve until the Government made some change in the conditions of Class B releases. It was decided that members of the Federation should be advised that slaughtermen were included in Class B in order that application could be made by the employer for their release.

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STEPHEN LEACOCK ON VETERINARY EDUCATION

"Unless we go through the organised compulsory curriculum of a school and college we can't get the legal qualification to enter a profession. In order to be a dentist we must first know what a logarithm is, and in order to be a horse doctor you have to learn Latin. The idea is that any man who has tackled a Latin irregular verb has no trouble with the inside of a horse. Sometimes it works. Last summer up at the little place I call my farm I sent for a veterinary surgeon to come over and see what was wrong with my old horse. He came and looked puzzled and said he guessed the horse was in a sort of decline. A few days later I fetched him again, but still all he could suggest was that the horse had fallen into a decline. When he came and gave the opinion the third time, I said: 'Ah, now, that's the third declension. I know all about that.'"—(From *Here are my Lectures*, by Stephen Leacock. Published by John Lane. The Bodley Head.)

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal views of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

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THE CONTROL OF BOVINE TUBERCULOSIS

Sir,—May I comment briefly on some points that arose in the discussion upon the N.V.M.A. Sub-committee Memorandum on the Control of Bovine Tuberculosis in Great Britain as reported in a supplement to *The Veterinary Record* dated June 23rd, 1945.

By far the most significant contribution to this discussion, in my view and experience, was made by Dr. J. T. Edwards, and the dismissal of this contribution by Mr. J. R. Barker as just a reaction to what he termed "the laboratory background" of Dr. Edwards seemed to me to be sadly lacking in imagination. Dr. Edwards had put with eloquence and clarity what might be defined as the vitalistic side of the problem as contrasted with the mechanistic side favoured by more "practical" men. The insistence by Dr. Edwards on housing as the major factor in favouring the virulence and spread of bovine tuberculosis and his reference to breed variation in immunity were matters that, from a scientific point of view, simply call aloud for veterinary research. To blanket and squash these potentially powerful means of controlling bovine tuberculosis by just concentrating on the clumsy business of test-and-slaughter is unworthy of a scientific body. At least, as Dr. Edwards suggested, such factors should be most carefully studied before the butcher is called in.

Let me quote a single instance of the sort of research that has been recklessly neglected by our "practical" men in their dealing with this matter. In the wet or rainy belt of the main island in the Fijis there is an extraordinary variation in the incidence of bovine tuberculosis, which can be explained precisely by the difference in the vegetation. A difference between sunshine and shadow. All the cows around the town of Suva, which is the capital of Fiji, are pastured on a legume named "sensitive grass." This sturdy grass is palatable to cattle and is always kept close-cropped by the cows pastured on it, so that the ground is fully exposed to all the sunlight that there is. The incidence among these cows is low, as I know from tuberculin testing and abattoir examination. This is so in spite of the heavy rainfall.

A few miles away (less than 20 miles), in the Rewa river alluvial soil district, the cattle are pastured on "para grass," a soft and lofty species of marsh panicum. The rainfall is the same as at Suva. It is a peculiarity of this grass that it cannot be closely grazed because if this happens the grass is killed out and the pasture is replaced by useless weeds. Consequently the cows are moved often enough to ensure that the para grass is always fairly long, with the result that the ground and the lower level of the herbage are always in the moist shade and consequently the incidence of tuberculosis in the cattle is extraordinarily high. The same has been found, and for the same reason, in herds of cows in Northern coastal Queensland pastured on para grass.

I could give many other instances, all pointing to the same conclusion. Such facts have a significance for Dr. Edwards and even for laymen like Mr. Hosier—but not, it would seem, for all those veterinarians in Britain who admire the mechanistic way of controlling disease and seem not to be interested in studying natural means.

I am not indulging in sarcasm but just trying to show what we may be missing if we discard the study of natural phenomena in favour of a mechanical procedure that could be carried out by any trained body of butchers.

Yours faithfully,

J. W. Rainey.

Department of Agriculture,
Animal Health Services,
Devonport, Tasmania.

August 21st, 1945.

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VETERINARY EDUCATION

Sir,—I am sorry that Dr. Wooldridge should feel so worried about the present system of examination—and about the present examiners. If it is justified then it is surprising that one hears so few complaints from teachers; one might even expect grumbling from unlucky examinees, but apart from the lamentations of Dr. Wooldridge, nobody seems to be very agitated.

Convention forbids either examiners or teachers to discuss the matter publicly or to say anything in defence of themselves or the present system, but I feel that if the assertions of Dr. Wooldridge (*The Veterinary Record*, August 25th) are left unchallenged, they may acquire a fictitious value.

Having been a final year examiner for a good many years before being superseded in the interests of progress, I am in a position to defy convention and speak from experience. It will be no breach of privilege when I assert that the whole of the final year examiners, who were my colleagues, cheerfully overcame all the difficulties and hardships which Dr. Wooldridge bewails and, despite their fatigue, never failed to give each and every candidate a thorough, fair and searching examination. They maintained a delightfully friendly relationship with the teachers at every centre, and I am sure that any doubts as to their efficiency and devotion to duty would be quickly dispelled if members of the profession had any inkling of the care and collaboration exercised and of the lengthy discussions which ensued between the external and internal examiners whenever a border-line candidate was being considered. Teachers in every case exerted a marked influence on the final decision, and their opinions were always sought, respected and given full consideration.

No one, least of all the examiners, will deny that the present round is too condensed, but an extra day or two added to the total would enable the number of students examined daily to be reduced to reasonable numbers, and I do not think anyone would raise objection to such extension.

Dr. Wooldridge writes: "The excessive length of examination automatically precludes many members of the profession from finding the time for such important but to them secondary tasks as examining for the R.C.V.S. Apparently he feels that the best potential examiners refrain from offering their services and that the present personnel may fall short of perfection, but surely all this hubbub does not mean that Dr. Wooldridge, *alone*, is dissatisfied with the present examiners? If the feeling of distrust is more widespread then he will be performing a public duty by producing his evidence.

The very fact that the present final year examiners are all busy practitioners, willing to give up time they would more profitably devote to practice (or even holidays), and to endure all the hardships enumerated, indicates that *they* certainly do not consider the task they have imposed upon themselves as being of only *secondary* importance.

The wisdom of retaining a group of examiners for years can only be estimated by a consideration of the merits or shortcomings of the individual members of that group, and I do not doubt that the Examination Committee of the R.C.V.S. would be prepared to discuss the retention or rejection of any particular individual against whom sufficient evidence of incompetence could be brought. One can only suppose that Dr. Wooldridge considers that better examiners *must* exist than those functioning at present, but supposing he is right, clinicians will still have the same difficulty in "finding time" whether employed by the R.C.V.S. or by a university. Surely Dr. Wooldridge does not contemplate exchanging the part-time clinician for the whole-time academician?

I cannot even guess whence he conceived the idea that the same standard of examination cannot be maintained by jaded examiners throughout a tour. I certainly never detected any variation of standard at the different centres, nor was the possibility ever discussed. It is true that certain centres specialise in certain directions, but additional teaching whilst raising the minimum standard, never had any effect upon the minimum standard by which a candidate stood or fell and which remained constant throughout the tour.

Regarding the suggestion that busy practitioners must be out-of-date, I found my colleagues enthusiasts in their subject; discussions and interchange of ideas was endless and nothing new escaped their studies. Dr. Wooldridge's assertion that lack of contact with the courses of study and the teaching results in unsuitable questions being set from time to time is just too ridiculous. Examiners are in the closest touch with the teaching staffs and the syllabus is open to all who read. The questions before publication are scrutinised by the R.C.V.S. My own impression of candidates was that they were more at home and less nervous with the external examiners than when their own teachers were present.

Yours faithfully,

R. H. Smythe.

45, St. James' Street, Nottingham.
August 27th, 1945.

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Sir,—In his letter in your issue of to-day (August 25th), Dr. W. R. Wooldridge still declines to answer the questions put to him in my letter in your issue of July 14th last.

Instead, he indulges in a somewhat hollow tirade against our examination system which, coming as it does from him, sounds rather like the lament of the Fox in the fable of the "Sour Grapes."

Besides the fact, best known to present-day psychologists, educationists and others who are now carrying out researches into the

subject, that no satisfactory substitute for testing attainment and efficiency has yet been devised for the admittedly imperfect examination test, all that need now be said is that if the veterinary profession were to follow the illusory courses advocated with so much passion and aggressiveness and so little knowledge, experience and reason by Dr. Wooldridge, it would be destined to become more and more subservient to a bureaucratic hierarchy whose members are entrenched in their positions in virtue of having exhibited special prowess at that very examination test, during the period of their adolescence, and that test only.

At any rate, those of our own members who have acquitted themselves most creditably in our examination system, and especially those whose names are given in the lists from which the table published in my letter in your issue of August 17th was compiled, need have no cause to display manifestations of a sense of inferiority towards members of that hierarchy, who so often, as is well known, in their turn reciprocate manifestations of unfeigned gratification *vis-à-vis* such few of our members as feel that sense most keenly and deeply and such as are thus led to display introjective exhibitionisms.

On my part, to continue this correspondence further, in view of Dr. Wooldridge's inability to provide straightforward answers to the few plain questions put to him, is unnecessary.

The veterinary profession has already declared itself in no uncertain voice in regard to the unhappy incident in its history represented by the Second Report (1944) of the Departmental Committee on Veterinary Education of which he was an unusually and needlessly vocal member.

In conclusion, therefore, leaving willingly to Dr. Wooldridge himself, as he will doubtless wish it, that least masculine of prerogatives, "the last word," I would ask leave to say this much, choosing language which I hope is not so much "involved" as to place an excessive strain on his own powers of attention and understanding:

> We can now rejoice that in the year of its Centenary, 1944, during a period of grave national preoccupation, the British Veterinary Profession showed itself alert enough not to be duped and virile enough not to be coerced into subjection to a system (*a multi-portal system*) which, in words made memorable in the First Report (1938) of the said Departmental Committee on Veterinary Education, *will not be to its advantage*. Furthermore, the profession recorded its view unmistakably that any uncalled-for intrusion by outside people or bodies into the affairs of its self-government would be looked upon as sheer presumption.

With the transformation that has now taken place, peace being fully restored and a new Government in office, which it is sanguinely hoped will not debase the fine dignity of its own name of Labour by exalting such to place and power as have not stood out as honest labourers at their own professed craft or calling, it is earnestly to be expected that the above unhappy incident will soon henceforth be relegated to the limbo of the forgotten past and the veterinary profession allowed to toil on, peacefully and unmolested, in its own well tried way, for the ever better service of the general public and shape its tests of proficiency for entry into its ranks, always specifically to that end, as it alone knows best.

Yours faithfully,

University of London Club, J. T. Edwards.
21, Gower Street, W.C.1.

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Sir,—In a further letter to these columns, Dr. W. R. Wooldridge tabulates his reasons for criticising the present R.C.V.S. examination system.

I would suggest to him that if he will accept the second suggestion put forward in my last communication, all of these points will be solved.

But the cardinal problem must be visualised as essentially in three parts:—

(1) *Government of the Profession.*—This must remain indisputably in the hands of the profession. This is sound British tradition, having had its first clear written expression in the famous Durham Report of 1840 (four years before our Charter, and contributing at that time to our obtaining it, rather unexpectedly, easily).

(2) *Licensing of entrants.*—This must remain under the direct control of the R.C.V.S. No substitute as an adequate test has yet been found from the intensive researches of psychologists for the *examination test*; and, therefore, that test in the *essential five veterinary subjects*, must remain in its hands.

(3) *Education.*—Wherever this is undertaken, it must have a *professional aspect throughout*, the aim being to produce a licentiate fully qualified to practise veterinary medicine and surgery, to meet the general public demands of the moment, in the shortest possible time, and at the least possible cost.

There can be no compromise over (1) and (2). As regards (3), natural evolution may to a large degree assist. Much has been written about research. It is my view that research can be carried out only in a university atmosphere, for it is apt to become "stifled" in Government service and cramped at seminaries. Aberystwyth has set an example which might usefully be followed by every single university in the United Kingdom, namely, to establish a chair in veterinary science, allowing the occupant untrammelled facilities for research into some broad aspect of veterinary science.

Yours faithfully,

"Rothiemurchus," J. F. D. Tutt.
St. Cross, Winchester.
August 25th, 1945.

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RELEASE OF VETERINARY SURGEONS

Sir,—I consider that the release of a limited number of veterinary surgeons from all branches of the Services except the R.A.V.C. operates unfairly against officers in the Corps, who gain little veterinary experience of value in general practice while remaining in uniform.

Many of us served in other branches of the Services and later transferred to the Corps when the need for veterinary officers became "urgent."

I cannot speak for C.M.F. or S.E.A.C., but in M.E.F. the need for veterinary officers is so "urgent" that two of us are at present working extra-regimentally, rather as if a doctor were drafted into the Pioneers.

Yours faithfully,

Hama, M.E.F. R. G. Mares.
August 18th, 1945.

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COLLEGE PLACES

Sir,—From Mr. Paul Crosfield's lettter in *The Veterinary Record* of August 25th, it would appear that in one veterinary college at least the method of entry depends purely on priority of application and that places can be reserved years in advance.

As so many are wishing to enter our profession it seems to me that a method of entry similar to that employed by some of the medical schools should be adopted, namely, a closing date for the receipt of applications for the ensuing year is fixed after which all candidates are considered, interviews arranged and the most suitable of these accepted. Apart from giving servicemen the consideration they deserve, this method appears to me to be fairer to all and should ensure that the most meritorous of the applicants are given the opportunity to study veterinary science, which is to the benefit of our profession.

Yours faithfully,

H. Williams Smith.

Plastirion, Pentir, Bangor.
August 27th, 1945.

Advertiser's Announcement

A Price Correction

In our last issue the price of Phenothiazine M and B 500 gramme container was given as 17/9 net, plus purchase tax. The correct price should be 8/6 net, as will be seen in the advertisement on page ii. of this issue.

DISEASES OF ANIMALS ACTS. 1894 TO 1937, AND AGRICULTURE ACT, 1937 (PART IV).

Summary of Returns of Confirmed Outbreaks of Scheduled (Notifiable) Diseases

Period	Anthrax	Foot-and-mouth	Parasitic Mange*	Sheep Scab	Swine Fever
August 1st to 15th, 1945 ...	6	2	—	1	37
Corresponding period in—					
1944 ...	5	16	—	1	89
1943 ...	6	2	—	1	24
1942 ...	10	92	—	—	15
Total Jan. 1st to Aug. 15th, 1945	71	101	6	48	616
Corresponding period in—					
1944 ...	123	45	6	62	607
1943 ...	188	12	6	105	333
1942 ...	210	203	26	118	280

Note.—The figures for the current year are approximate only.
* Excluding outbreaks in Army Horses.